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Shifts in Floods Policies in Netherlands

On 15 January 2015 there was a conference organised at the French National Assembly by the Cercle Français de l'Eau with the inspiring title 'Water management: should we get inspired by our European neighbors?' This paper builds on the presentation given by Marleen van Rijswick at that conference in which she discussed shifts in Dutch flood risk policies. The presentation was inspired by research of Dutch academics working in an international team of six EU Member States on the way these countries deal with flood risk management, the STAR-FLOOD project (see for research results: www.star-flood.eu).

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opening image: North Sea flood of 1953
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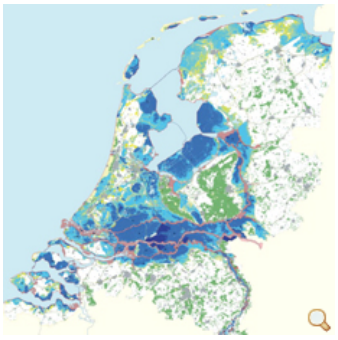
For a proper understanding of flood risk policies in the Netherlands it's important to know that in the Netherlands the risk of dying because of floods is ten times higher than all external risks together, including terroristic attacks. That explains the approach the Netherlands takes in flood risk management. A famous Dutch saying is that "the dikes make up the state" which means that without dikes there will be hardly no Netherlands left. That also explains why in the Netherlands the approach is mainly public: it is the responsibility of the state and its decentralized authorities to take care of flood risks. In this paper we will explain why the focus in Dutch flood risk management is on the following leading principles: decentralisation, prevention and solidarity combined with cost recovery and classical democratic institutions for public participation, further elaborated and put into practice with the help of powerful legally binding public policy instruments. Before we discuss 'who decides', 'who should act' and 'who is responsible for flood damage' some facts are given.

Facts

The Netherlands is a low lying delta of four major rivers. The Rhine, the Meuse, the Scheldt and the Ems flow through the Netherlands into the North Sea. The Netherlands is vulnerable to flooding. Some serious floods occurred a long time ago, for example the Allerheiligen floods in 1170, and the Zuiderzee floods in 1916. The most recent flood was in 1953 and caused over 1.800 fatalities, huge economic and ecological damage and is seen as the national trauma. Without protective measures like dykes, more than half of the Netherlands is threatened by flooding from the sea or the rivers. Two thirds of the population lives in this flood prone area and two

thirds of the gross domestic product is earned there. In all there are more than three thousand kilometres of dams and dykes to protect against flooding and low-lying polders are drained for agricultural purposes and to keep them habitable.



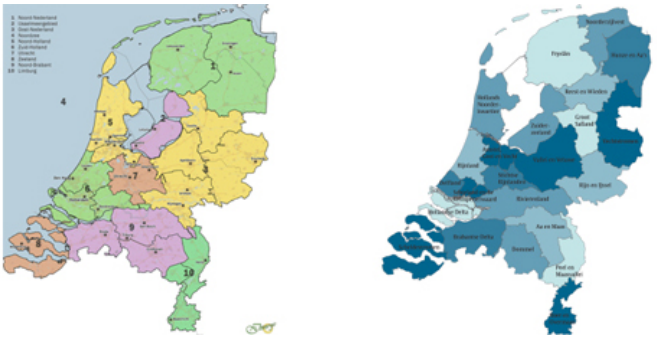
A public approach

The Dutch flood safety policy is based on the premise that the State is responsible for flood safety behind the dykes. This public approach is long based on provisions in the *Dutch Constitution* that the government takes care of the 'habitability of the country' and the protection and improvement of the environment (now Article 21 Dutch Constitution). This is further elaborated in the *Water Act of 2009*, as one of the goals of Dutch water management is flood prevention (Art. 2.1 Water Act). However, The Netherlands takes integrated water system management as its main approach, combining flood risk management, water quality management, quantity or drainage as well as waste water treatment in one legal act and within one formal institutional layer. Water management is based upon a river basin approach, dividing the country in sub river basins.

The Dutch legal system provides for an elaborated public flood management system that applies to *embanked areas*. Rules provide for flood safety standards for different parts of the Netherlands, water management plans, measures banning activities on or near flood defences, water storage areas, maintenance, monitoring, and water management taxation. Therefore, the current Dutch flood safety management system has a strong public character.

Responsible water authorities

Two institutions are mainly responsible for flood risk management. At the national level, the minister for *Infrastructure and Environment* is formally responsible for strategic planning, setting norms and standards, and reports to the Parliament and the EU. The main operational institution at the state level is *Rijkswaterstaat*, a national governmental agency. This executive body is responsible for public works and water management of the larger waters (North Sea, Wadden Sea, the greater lakes, rivers and canals) and a few flood defence works along the coast. At the sub-river basin level, the *regional water boards* are responsible for the integrated water management of regional waters, which includes the protection against floods. They are responsible for planning, design, building, maintenance and most of the financing and monitoring of flood defence works and water storage areas and the regulation of activities which may influence the risks of flooding.



Districts of Rijkswaterstaat agencies (left) and water boards (right).

The current 23 Dutch water boards (hereafter called 'water authorities') arose originally out of thousands of community based institutions, which institutionalised into regional, public water authorities. They have legislative power in the formulation of by-laws and make decisions with respect to the budget, annual accounts, taxes, control, water level, licensing and water management plans. They also have the authority to employ executive coercion. However, a recent low electoral turnout (24%) has prompted review and a potential shift towards indirect elections with municipalities electing board members for their residents or even to the abolishment of water boards.

The central government mainly provides the national legal framework and a strategic policy. The provincial government supervises the water authorities and is authorised to establish or dissolve them.

With flood risk management being practically a sole responsibility for state institutions in the Netherlands, there is *little stimulus left for either market or communities* to take up flood management tasks themselves. Living in flood-prone areas is more or less the 'normal situation' in most of the Netherlands. The only flood management tasks formally left to civil communities or citizens themselves is flood management in un-embanked areas and in the case of excessive rainfall induced urban flooding. The strong role for the government in flood protection has not only led to extremely high standards of flood safety, but also to a serious lack of public awareness of flood risks.

Democratic legitimacy and Financing Dutch flood risk management

Democratic legitimacy is guaranteed through the representation of various categories of stakeholders in the governing bodies of water boards. In line with the adage 'no taxation without representation', each group can elect the water authority board members and is eligible to take a fixed number of seats on the board. The water boards' tasks of water quantity control and flood protection are thus carried out on the basis of `stakeholder participation' and the `benefit principle combined with a strong focus on solidarity amongst those who live in the same water board territory'.

Water management costs are around 6.5 billion Euro per year. Landowners (farmers), nature reserve organisations, businesses and residents pay a water management tax to their water board.

The financial mechanism exemplifies the importance of the solidarity principle: Those who benefit from the activities of the water authority pay taxes for its services and have a (proportionate) say in the assembly in return (the stake-pay-say' triplet). Regional water authorities pay for maintenance of flood defence works and most of the investments in new flood defence works, the state pays part of the costs (50%) but only for large investments in flood defence works and for flood defence works that affect more people than those who live in the water board region.

By contrast, *urban flooding in public urban areas is a municipal responsibility and citizens are responsible for floods in urban areas on their own territory*, except when there are such exceptional circumstances that they cannot be expected to take care of their own flood risks. The duty to protect against urban flooding (from rain water, waste water collection systems or groundwater) is less stringently formulated than the responsibilities that rest on the regional water authorities. There are no legal standards and municipalities formulate their policy goals and foreseen measures and investments in a non-binding local plan, thus clarifying the division of responsibilities between the citizens and the municipality. In addition, municipalities have powers to regulate activities that may influence urban flood risks and they have the power to raise taxes for specific water management tasks.

Dutch policy instruments and principles

Planning – Dutch water management is based on integrated long-term strategic planning and midterm strategic and operational planning. In the national, provincial and regional water plans we find differentiated responsibilities for all governmental authorities.

Safety standards and reporting obligations: adaptive water management – The Water Act contains flood risk safety standards and provides for a system of six yearly monitoring (to be changed in a ten year monitoring cycle) and reporting to the Parliament. These reports are followed by new investments in case the safety standards are not met. Although certainly not all flood defence works meet the safety standards (currently around 60% meets them), the constant programmatic investment and implementation of dyke improvement programmes has ensured that there were no serious floods in the last sixty years.

The Dutch approach is characterized by the focus on prevention and the high flood

safety standards which are established by an Annex to the Water Act. These legal standards determine the *acceptable probability of flooding* within the dyke rings. Although these standards are set differently for specific regions, they can be regarded as uniform standards because they follow a rationale of evenly spread risks. The west of the country has a 1:10,000 flood risk because of the high economic and social consequences related to the dense population and sudden onset of sea floods that make evacuation problematic. The flood risk in the East of the country is around 1:1200 years, because the economic and social consequences behind a ring of river dykes are less severe. It should be noted that *each dyke ring has its own standard of protection, reflecting the principle of solidarity between the people within a dyke ring*.

Regulations and permits to prevent or regulate activities that may increase flood risks – Both at the national and the regional level, regulations apply that have the aim to prevent or regulate activities that may increase flood risks. A water permit from the water authorities is required for almost all activities that increase flood risks. In addition, the Water Act provides for several instruments to enable the authorities to build or maintain flood defence works, create space for the river or water storage areas. The water authorities have far-reaching instruments to force citizens to accept works or – in the case of necessary storage – water on their land.

Duty to compensate disproportionate financial losses – Of course these powers are combined with a duty to compensate disproportionate financial losses, based on the principle of equality for public burdens (egalité devant les charges publiques) or full financial compensation of the damage in case of water storage.

Summarizing we can conclude that the focus in Dutch flood risk management is on the following leading principles: decentralisation, prevention and solidarity combined with cost recovery and classical democratic institutions for public participation, further elaborated and put into practice with the help of powerful legally binding public policy instruments.

New developments

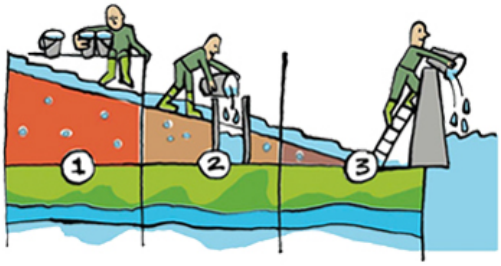
In the Netherlands as well as in other countries there are discussions on how to proceed with flood risk safety against the backdrop of increasing risks, climate change as well as changing ideas on governance. In the Netherlands, this was fuelled by the Second Delta Committee (www.deltacommissie.com). We will discuss two critical issues that are illustrating both the dominant approach in the Netherlands and the (im)possibilities of changing strategies and underlying institutional change: water management and spatial planning, (including discussions of 'multi layered safety') and insurance systems.

Water management and spatial planning – A universal problem is how to coordinate spatial and water management planning. Historically, water management was the servant of spatial planning. Making the 'best' use of land determined how water was managed, with water in an environment being heavily modified for this purpose and being sacrificed to the perceived needs of land use. In addition, spatial and water planning developed into different regimes: spatial planning generally being the responsibility of local municipalities with direct democratic accountability, whose decisions were typically subject to review and challenge. Local authorities both have to prepare a spatial plan and to provide development consent for major developments where refusal of consent can be appealed. Water management increasingly became seen as a technical problem and so responsibility has resided with engineering bureaucracies; Rijkswaterstaat (together with the water boards) in the Netherlands. Since the way land is used influences the flood risk on that area, such a division of responsibilities is no longer seen as viable. The problem is then how to integrate

water and spatial planning and how to include the implications for water management into land use planning decisions.

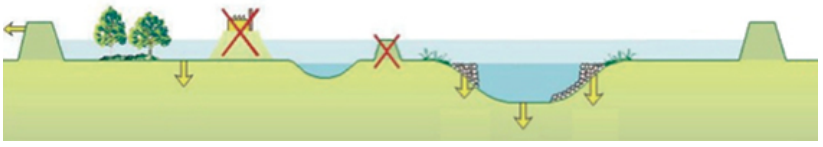
Water management in the Netherlands served first agriculture and later other land use regulated by spatial planning as best as it could. Water management evolved into a strongly sector-based policy, with a strict separation of water and land use functions. Only in the last decades it became clear that spatial planning and building activities can have major implications for flood risk management. Starting with the coordination of plans in the field of water management and spatial planning a '*water assessment*' or '*water test*' has been developed. There is a mandatory duty for municipalities and provinces to ask the water board for advice on the consequences of spatial developments for water management and to motivate in their spatial plans how they have accounted for the effects on water management, including that of flood safety as well as water quality. Although the instrument of the water test led to a better understanding and more cooperation between water managers and spatial planners, the instrument is not yet fully effective. The main reason for this is that spatial planners are not obliged to follow advice given by water managers and in practice we can see hardly any impact on the selection of planned development sites.

A long-held common tradition has been to have certain polders flooded on purpose, to protect densely populated regions. This also asks for strong cooperation between spatial planning and water management. In the Water Act this common practice was formalised by a new instrument: the *Water Storage Area* as an additional step in the triplet : 1. keeping the water where it belongs, 2. storing the water in specific areas and finally 3. discharging to water via canals and larger watercourses towards the see.



Regional water authorities in cooperation with municipalities can designate 'storage areas' in which water can be stored in cases of extreme rainfall or high waters in rivers. The designation is required to take place both in spatial as in water management plans (more specific in the 'leggers' which are maps and tables with specified safety standards, characteristics of water bodies, maintenance responsibilities etc.). The Water Act provides for a *legal obligation of the land owner to accept water on his land* but also for full compensation of all damage caused by this storage of water.

Since 2009, with the coming into force of the Water Act, a stronger relationship between water plans and spatial planning is being established. An important example is are the Room for the River Projects, based on the philosophy that water needs more room to guarantee safety against flooding in a more natural way.



Measures to increase the conveyance capacity: Enlargment of the flood plain (laying back dikes), lowering the flood plain, removing obstacles, secondary channels, "removing summer dikes", lowering the groins (which focus the flow of the river during low discharges).

Historically, the main problem in the relation between water management and spatial planning is that flood risk management trails after new developments and is required to enable those taking place. This leads to increasing responsibilities for water managers to ensure safety while higher economic and social risks are taken in flood prone areas. This is what is called the safety paradox. Although climate change and economic development are increasing the risks for land use, the costs of extra safety efforts are not paid by spatial planners (municipalities), urban developers or people that will live or work in these new developed areas, but continue to be borne by water authorities and in the end by all citizens living within the territory of a certain water board. In other words, all citizens (the collective) within the territory pay for the high risk-vulnerability of additional land use by a small group of people.

Multi layered safety – At this moment we see shifts in the discussion on the classic flood risk management approach in the Netherlands. Although Dutch flood risk management has been adapting over the centuries due to societal and physical changes we can also see some recent shifts in (flood) risk governance. The concept of *multi-layered safety*, as introduced in the Dutch National Water Plan of 2009, is a central element in this discussion. In short, it is discussed that the Dutch approach should *evolve from a flood probabilities approach to one that takes into account both flood probabilities and consequences* (for human health, the environment, cultural heritage and economic activity).

It is proposed to start reasoning from three layers:

- flood defence is still key in water management, but should, in case additional measures are necessary, be supplemented by
- a second layer of mitigation measures in the field of spatial planning and building requirements and a
- third layer of disaster management - flood preparation and recovery (Delta decision taken by the Parliament in September 2014).

Possible spatial measures include the elevation or flood-proofing of houses, re-locating of houses and the compartmentalisation of the areas within a dyke ring.

Disaster management asks for flood forecasting and warning systems, organisational measures such as evacuation plans and related training, as well as physical measures, such as sandbags, in cases where flood defences fail.

This new flood risk approach is in line with, and actually promoted by, the European Floods Directive (Directive 2007/60/EC). It is not wholly new; it simply renders explicit the previously very implicit societal determinants of the height and width of dykes. However, it opens the door to different responses to reduce flood risks. This may question the domination of public water management and existing expertise in flood risk management. Reducing adverse consequences requires cooperation with different actors, like municipalities, but also with non-governmental actors who own property in flood prone areas. Taking multi layered safety one step further means that we might shift the now fully public responsibility in the first layer to the other layers, that is, from Dutch water authorities to a broader range of governmental authorities; provinces and municipalities responsible for spatial planning, civil protection, economic affairs and agriculture. It also might entail a shift from the predominantly public sphere to the public and private sphere when measures are to be taken.

We might also see a shift in the normative principles, from uniform 'equal risks in water safety for all' based on regional solidarity, towards a more differentiated, nuanced approach where there is more room for regional differentiation of safety norms and private responsibilities.

If multi layered safety would become the new dominant discourse in water management, we could witness an important change in thinking in the domain of Dutch flood safety. Although at this moment there already exist a responsibility for municipalities to take care of 'good spatial planning' which comprises taking care of flood safety by not building in flood prone areas or by prescribing specific building requirements that improve the safety of citizens, municipalities have failed to take this responsibility seriously. Many building developments have occurred in flood prone areas, thus increasing flood risks for thousands of people. The same goes for evacuation plans and training for calamities. Municipalities and provinces cooperate in so-called safety regions, because they are formally responsible for disaster risk management. However, this cooperation is not extended to the water authorities. This is a serious omission, in view of the water authorities' legal responsibility to develop and test flood calamity plans.

Insurance Systems: Financial resilience from flooding – Following the 1953 coastal storm surge flood, insurers declared the Netherlands uninsurable for flood events. As a consequence, the government may provide disaster relief by paying on an incidental base parts of extraordinary damages. This arrangement is established under the 2010 Security Regions Act: government may award state funds to those suffering damage caused by a disaster: of which a serious flood would certainly qualify. This possibility for partial compensation of damage caused by floods should

not be compared to the no-fault compensation regime based on the Water Act in case damage has been caused by measures employed to prevent flooding. Additionally, no-fault liability compensation based on the Water Act is not routinely provided for all losses, only burdens which are considered to be abnormal (i.e. disproportionately large in comparison to others) is offered compensation and even then the amounts provided are limited. Compensation of damage by water authorities is also possible within the fault liability regime. The latter could lead to the liability of water authorities in those cases where damage is caused because water authorities did not fulfil their obligations to take care that flood defence works met the required standards. Furthermore, in 1995 the Dutch government entered a covenant with the Dutch Association of insurers to establish a calamities fund, however this agreement was not finalised as it was reasoned that the Dutch Constitution states the government is responsible for the 'habitability of the land'. Therefore, the degree to which any compensation fund assists or promotes societal resilience is questionable.

Over the last few years, the discussion on introducing insurance was revived in the light of future climate changes in order to create a backup system for disastrous events with the advantages, limitations and difficulties in implementation being widely discussed. To date, in the Netherlands there is the possibility to insure crop damage caused by heavy rainfall. In addition, since September 2012, a company has been offering the first flood insurance project in the Netherlands covering a damage of up to €75,000 ; however uptake has been very low. This new provision, and other debates, reintroduced the notion of introducing compulsory flood insurance. Discussions concerning a flood insurance system of this nature in the Netherlands are difficult due to the special situation of the country: a tendency for low probability and high impact flood events which greatly hinder the spreading of the risk. The subject seems to be highly political including several opposing positions and most recently the EU (an advocate of the use of insurance schemes for flood resilience) has joined national government political parties, NGO's, commerce, agriculture and citizens in the debate about these issues.

Mandatory flood insurance does not appear to be a good option for Dutch society for several reasons. Firstly, the introduction of a mandatory private flood insurance scheme does not fit with the Dutch conceptualisation of resilience: one that focuses on prevention of the whole society accomplished by hydraulic systems combined with more natural flood risk management in recent years. Secondly, it was argued that mandatory insurance is not fair for those who chose to live in safe areas as they would not require cover and provides a disincentive to residing in those safe areas. Third, the viability of a private market insurance is uncertain as by excluding those not at risk would mean that risk could not be spread sufficiently broadly. Finally, there are also concerns about whether a mandatory system would satisfy competition regulations.

Discussion

Domestic governance of flood risks reflects both a specific 'division of labour' of state, market and communities, and specific principles that guide societal opinion and political decision making. Governance approaches thereby reveal certain conceptions of resilience. But of course also physical circumstances will strongly influence the design of flood risk policies.

Physical environment and the nature of flood risks – France and The Netherlands will differ in their physical environment and in the nature of flood risks. This obviously leads to dissimilarities in approaches. The Netherlands is known for its high vulnerability to flood risks: about 25% lies below sea level and more than 60% would be flooded without technical measures (dams, sea and river-dykes and embankments). A long history of large river- and sea floods has created a national narrative of "the battle against water". Reproduced in state documents, public communication and even in commercials, flood events are viewed as life threatening (although more people died in the last decades because of air pollution, traffic incidents, other accidents et cetera). However, flood policy is still regarded as a national safety issue and is therefore – at least theoretically – positioned as a separate interest, at the regional level in a way kept away from daily politics. This is reflected in Dutch water – and flood risk governance: it has a specific, functional institutional layer consisting of regional water boards and the national agency Rijkswaterstaat. The problem of adaptation to climate change is incorporated by these strong and prevailing water managers too.

Governance approaches – Let's turn to the governance approaches in the two countries in more detail. In The Netherlands generally there is hardly any formal role, nor formal responsibility, for the market and communities, except for in un-embanked areas and for urban flooding; with those exceptions, flood governance is firmly in the hands of the state institutions, although recent policy concepts are challenging the predominant role of state water management. Dutch public authorities have (potentially) strong powers and resources although the instrument of the expropriation of land is rarely used. The government prefers less far-reaching instruments such as regulation and duties to tolerate water or public works, monitoring and maintenance on one's land ('gedoogplichten').

The option of acquiring properties and land to take flood risk measures simply because they are at high risk of flooding is not an option in the Netherlands. Too

much land and property should be expropriated in that approach. These payments do seldom occur in the Netherlands too, also because damages are preferably prevented instead of recovered afterwards.

The idea of resilience: collective, public or private responsibilities? – The Dutch conception of resilience is centred on maintaining the resilience of the collective, secured by an existing system of flood defences thus enabling society to live in economically important, densely populated but also vulnerable areas of the country. Dutch resilience is thus seen more in the light of 'high vulnerability' of society as a whole – in need of collective-state-protection. .

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